London parks, as has been the case at Hampstead, where the small bog above the Leg of Mutton Pond, in which grew the Sun-Dew (Drosera) and the Bog-bean (I used to visit them there!) might well have been left as a bog for the delighted contemplation of London naturalists. There was plenty of dry ground on Hampstead Heath without destroying the bog. There is danger of all such open spaces being converted into a common-place garden or a football field or a golf course unless the new society can extend its protection to them.

The purpose of this article is to invite all lovers of the wilderness, all worshippers of uncontaminated nature, to enter into communication with the Society for the Promotion of Nature Reserves, and see how far they can help in promoting its most worthy national objects.

E. Ray Lankester.

P.S.—The following series of inquiries issued by the Society for the Promotion of Nature Reserves will enable the reader to appreciate its purposes and mode of going to work.

Answers will be treated as strictly confidential, and will be at the disposal of the executive committee only. Name of Place. District and county where area is situated. Name and address of society or person giving information. (A) Is the suggested area worthy of permanent preservation as:—(1) A piece of typical primeval country? (2) A breeding-place of one or more scarce creatures? (3) A locality for one or more scarce plants? (4) Showing some section or feature of special geological interest? (B) Is the place recommended primarily for birds, insects, or plants? (1) To whom does it belong? (2) Would the owner be willing to sell, or could the area be leased? (3) Could you get local financial aid should it be considered desirable to acquire the area? (4) Is the place or site locally popular as a pleasure resort? This form should be filled up and returned to the secretary, Society for Promotion of Nature Reserves, c/o Natural History Museum, Cromwell Road, London, S.W.

GOVERNMENT LABORATORY REPORT.[1]

FROM the report of the Government Chemist,[1] issued a short time ago, it appears that the work of the Department increased considerably during the year 1912–13. The total number of samples examined was 209,502, as compared with 195,170 in the previous year.

It is noted that many questions of a consultative and advisory nature, apart from those connected with the examination of samples, are referred to the laboratory by various Government departments. Above 600 such references were dealt with during the year. They included such diverse matters as the causes of the deficiency in the non-fatty solids of milk; the relation between the citric acid solubility and the availability of the phosphates in slags; the selection of suitable denaturants for growing tobacco; stamps for National Health Insurance; and the supply of lime juice to the mercantile marine.

In connection with the attempts to cultivate tobacco and sugar in this country, it is interesting to note that 224 samples of home-grown leaf tobacco were examined, and also specimens of beet-juice, sugar, and molasses from the recently erected beet sugar factory at North Cantley.

Imported dairy produce was generally satisfactory as regards freedom from adulteration. Thus fresh (pasteurised) milk was not below the statutory regulations for quality, and contained no preservatives or artificial colouring substances. Imported butter, of which 1223 specimens were analysed, occasionally contained a small excess of water, but gave no evidence of the presence of fat other than butter fat.

In connection with the supervision of dangerous trades, a large number of lead glazes, dust, and other articles were analysed. From works where lead poisoning had occurred, fifty-eight specimens of lead glaze were taken; in most of these nearly the whole of the lead was in a soluble form, and therefore readily dissolved by the acids of the gastric juice. The principal chemist notes also that important investigations were conducted during the year for the Home Office Committees appointed to consider questions concerning (1) celluloid, and (2) the use of lead compounds in the painting of buildings and coaches.

A large part of the report is devoted to an account of the work done by the laboratory in exercising chemical control over the production and sale of dutiable articles. The account is accompanied by brief outlines of the reasons for this control, and shows how it is exercised. For example, it is explained that the duty on beer brewed in this country is charged on the wort or unfermented saccharine liquid from which the beer is brewed; that the basis of the charge is a statement made by the brewer as to the quantity of materials used and unfermented wort produced, and that the accuracy of this statement can be checked at any time subsequently by analysing the fermented wort. That there is some need for such control is shown by the fact that out of 11,641 samples examined, 1628 were found to have been "declared" at less than their true value. In this and numerous similar ways the laboratory has become an indispensable ancillary of the fiscal departments.

The report shows steady progress of the laboratory, and records a useful year's work.

NOTES.

The meeting of the Royal Society on March 19 will be a meeting for discussion, the subject being "The Constitution of the Atom." The discussion will be opened by Sir Ernest Rutherford.

Mr. Laurence Binyon, assistant-keeper in the British Museum in charge of the sub-department of Oriental Prints and Drawings; Dr. R. M. Burrows, principal of King's College, London; and Mr. A. G. Lyster, president of the Institution of Civil Engineers, have been elected members of the Athenæum Club under the provisions of the rule which empowers the annual election by the committee of a certain number of persons "of distinguished eminence in science, literature, the arts, or for public services."

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[1] The Report of the Government Chemist upon the work of the Government Laboratory for the year ended March 31, 1913. (Cd. 7001). Price 3*d*.

The death is announced of Mr. John Gott, widely known among telegraph engineers and electricians by his pioneer work in electrical testing and practical telegraphy.

The death is reported, in his forty-seventh year, of Dr. A. H. Pierce, professor of psychology since 1900 at Smith College, Massachusetts. He was editor of the Psychological Bulletin, and author of "Studies in Space Perception."

Dr. W. W. Bailey, professor of botany at Brown University, Rhode Island, from 1881 to 1906, has died at the age of seventy-one. His publications included "Botanical Collector's Handbook," "Among Rhode Island Wild Flowers," "Botanical Note-book," "New England Wild Flowers," and "Botanizing," as well as a volume of poems.

It is announced that the Government will ask the House of Commons to sanction a grant of 13,000*l.* for special investigation into the movements of ice in the North Atlantic. The grant is provided for in the Estimates for Mercantile Marine Services for 1914–15, and represents an increase of 11,000*l.* on the sum voted for this purpose last year.

In the Civil Service Estimates for the year 1914–15, issued a few days ago, it is announced under the head of "Grants in Aid of Scientific Investigation," that the sum of 5000*l.* is to be voted this year towards the expenses of the British Transantarctic Expedition, which Sir Ernest Shackleton is to conduct across the south polar continent. Another 5000*l.* is to be voted next year. This grant of 10,000*l.* forms part of the sum of 50,000*l.*, which was already guaranteed before the public announcement of the expedition.

A new magnetic observatory is being established in Swider, near Warsaw, in connection with the magnetic researches now being carried on in Poland by Dr. St. Kalinowski. The observatory will be provided with registering instruments (Adolf Schmidt's system), and for the absolute determinations a large Sartorius magnetic theodolite and an earth inductor will be used. Dr. Kalinowski hopes that the new observatory will be in active operation in the present year.

In accordance with the resolution adopted by the eighteenth International Congress of Americanists, held in London in 1912, the Smithsonian Institution have made arrangements for holding the nineteenth congress in Washington on October 5–10. The organising committee, of which the chairman is Prof. W. H. Holmes, head of the department of anthropology, United States National Museum, has already drawn up a provisional programme. This includes an archæological excursion to the aboriginal quarries and workshops at Piney Branch. A feature of the congress will be an exhibition of rare Americana and other objects and a special exhibition in the museum of the daughters of the American Revolution.

On Tuesday, March 24, Mr. A. H. Smith, keeper of Greek and Roman antiquities in the British Museum, will begin a course of two lectures at the Royal Institution on landscape and natural objects in classical art, and on Thursday, March 26, Dr. C. W. Saleeby will deliver the first of two lectures on the progress of eugenics: (1) "The First Decade, 1904–14," (2) "Eugenics of To-day: its Counterfeits, Powers, and Problems." The Friday evening discourse on March 27 will be delivered bv Prof. J. A. Fleming on improvements in long-distance telephony, and on April 3 by Sir J. J. Thomson on further researches on positive rays.

Prof. E. Naville, in the *Times* of March 6, describes a remarkable discovery in the course of excavation at Abydos. Strabo, in his account of what he calls the "Fountain of Abydos," speaks of a labyrinth with covered ways roofed with enormous slabs resting on pillars. Two gigantic colonnades have now been discovered not far from Seti's temple, leading into a great hall, now empty, as it has been a quarry for centuries. The texts, however, which survive on the walls, copies of the Book of the Underworld, show that this was the famous tomb of Osiris. Like the pyramids in the case of the monarchs of Egypt, this splendid building was a fitting tomb for a god. What has become of his body, whether only his head was preserved, whether the remains were enclosed in a sarcophagus—we shall probably never know.

The Army Estimates for 1914–15 provide a million pounds sterling for the air service, of which nearly 200,000*l.* is for buildings. Colonel Seely's memorandum on the Estimates points out that good progress has been made during the past year with the development of the Military Wing of the Royal Flying Corps. By the end of this month the number of officer fliers will have grown to about two hundred. During the past year an Inspection Department for Aviation has been formed and is finding much scope for its activities in inspecting new supplies of all kinds, and also in overhauling periodically the aeroplanes, engines, and so on of the flying squadrons. A special section of the Army Ordnance Department is also about to be formed to deal with the storage and supply of the highly technical and complicated *matériel* used in this branch of the service. As a general indication of the progress made in the past year, it may be said that, as compared with 100 aeroplanes in existence on March 20, 1913, there were on February 25 last 161 on hand, and between those dates 87 had been struck off as unserviceable and replaced.

Some of the recent work at Rothamsted in connection with the partial sterilisation of soils has found application in the Lea Valley district just north of London, where a great market garden and glasshouse industry flourishes. So much interest has been aroused among the growers that they have banded themselves together to form an Experiment Station where the various problems arising out of the industry can be investigated in a scientific manner, and where advice may be obtained as to plant diseases, pests, and so on. The growers have raised a large sum of money among themselves for the erection and maintenance of the station, and, in addition, a substantial Government grant has been made, and the county councils have also contributed; the financial success of the scheme therefore seems assured. The problems to be investigated are of great technical importance and high scientific interest. A strong committee of management has been formed, one-half being practical growers, and the other half men of science nominated by the committee of the Rothamsted Experimental Station. The scientific side of the work will, therefore, be amply represented, and there is every prospect that a sound programme of work will be drawn up.

MR. G. MARCONI delivered a lecture in Rome on March 3 before the King and Queen of Italy, members of the Italian Government, both Houses of Parliament, and the Diplomatic Corps. He described the progress which had been made in wireless telegraphy, and the difficulties which had been overcome since his previous lecture in Rome in 1903. His voyage to South America on board the *Principessa Mefalda* had illustrated that communication in a north and south direction was easier than communication in an east and west direction. Mr. Marconi described his new system for generating continuous waves, and its use in wireless telephony. He then described the apparatus for producing waves, divided into regular groups, and dealt with the improvements effected in receivers, giving a practical demonstration of the reception of messages in the lecture hall from Poldhu, in Cornwall, and Tripoli. Mr. Marconi finally described the practical applications of radio-telegraphy to all types of vessels, including submarines, as well as its uses in war and peace. He concluded with an acknowledgment of the help which he had received from the King and Queen of Italy.

AN appeal on behalf of the Alfred Russel Wallace Memorial Fund, signed by the executive officers, Prof. R. Meldola, Prof. E. B. Poulton, and Mr. James Marchant, was published in the issue of NATURE for December 11 last (vol. xcii., p. 425). If a sufficient sum can be raised, the following memorials are proposed:—(1) A memorial medallion for Westminster Abbey, to which the Dean and Chapter have given their consent; (2) a portrait; (3) a copy of the portrait for presentation to the nation; and (4) a statue to be offered to the trustees of the British Museum for erection in the Natural History Museum. It is estimated that the complete scheme can be carried out for 1100*l*. The subscriptions received or promised amount to 200*l*. The medallion for Westminster Abbey will, it is estimated, necessitate the expenditure of at least 300*l*., and the executive committee is anxious to complete this part of the work as soon as possible. The second part of the scheme, the portrait, will be proceeded with as soon as an additional sum of 350*l*. is subscribed. The most convenient course for intending subscribers to adopt is to send cheques made payable to the "Alfred Russel Wallace Memorial Fund," to the manager, Union of London and Smith's Bank, Holborn Circus, London, E.C. It is earnestly to be hoped that a sufficient response to the appeal will be speedily forthcoming to enable the executive officers to complete what will be worthy memorials of a great naturalist.

THE report of the council of the Physical Society (adopted at the annual general meeting on February 13) states that owing to the improved financial position it is felt that the society's field of activity should be increased; careful consideration has, therefore, been given, during the past year, to the possibility of introducing new features, such as the issue, from time to time, of reports upon certain subjects of general interest. The first subject selected for the purpose is radiation. Mr. J. H. Jeans, F.R.S., has expressed his willingness to write the report upon this subject, and to have it complete during the summer. An occasional or annual lecture by some eminent physicist will also be arranged. This series of lectures, the first of which will be found summarised elsewhere in this issue, will be known as the Guthrie Lectures, in memory of the late Prof. F. Guthrie, through whose efforts the society was founded. A committee has been appointed by the council to consider questions in regard to nomenclature and symbols and allied matters, and consists of Prof. H. L. Callendar, Mr. A. Campbell, Dr. C. Chree, Dr. W. Eccles, Prof. G. Carey Foster, Sir George Greenhill, Dr. A. Russell, Prof. the Hon. R. J. Strutt, Prof. S. P. Thompson, and Prof. W. Watson, with Dr. Eccles as secretary and convener. At present the committee is discussing electric and magnetic quantities; but reports on mathematical and mechanical nomenclature and symbols, so far as these concern physicists, and on heat are also projected.

A SUMMARY of the weather for the past winter in the several districts of the United Kingdom, as shown by the results for the thirteen weeks ended February 28, has been issued by the Meteorological Office. The mean temperature for the whole period was above the average over the whole of the British Isles, the excess being greatest in the English districts. The highest temperature in any district was 61° in the midland counties, and the lowest reading 5° in the east of Scotland. In the north-east of England the lowest winter temperature fell to 9°, and in all other districts it fell below 20°, except in the English Channel district, where the lowest reading was 25°. The summary shows the rainfall to be less than the average except in the north of Scotland and the north of Ireland; the greatest deficiency was 2·15 in. in the midland counties, where the total rainfall was only 67 per cent. of the average. In the north-east of England the rainfall was 70 per cent. of the average, in the east of England 75 per cent., and in the south-west of England 86 per cent. of the average. The greatest aggregate measurement for the winter was 19·16 in. in the north of Scotland, and the least measurement 3·83 in. in the north-east of England. There was a deficiency in the number of rainy days in all the English districts. The duration of bright sunshine was deficient over the entire kingdom, except in the south-east of England, where, however, the excess was very slight.

In the Annals of the South African Museum, vol. xiii., part i., Mr. L. Péringuey, the director, gives an interesting list of inscriptions left by early European navigators to the East in South Africa. The earliest inscribed stone is that of Diego Cão, A.D. 1484. This was found in German territory in 1893. By orders of the German Emperor, the original has been removed to Germany; one replica has been erected on the spot where the original stood, and a second has been promised by the German authorities to the South African Museum. The first English record is that of Antony Hippon, mate or master of the *Hector*, dated in 1605. The next is that of the *Thomas* in 1618. The paper throws new and interesting light on the early history of European discoveries in the East, and the evidence now provided will be useful for comparison with the early records in the India Office.

The University Museum of Philadelphia has started an interesting experiment for the study of some Indian tribes. Mr. L. Shotridge, a full-blood Tlinget, from the Chilkat river in south-eastern Alaska, has been appointed an assistant on the museum staff. He has made for the museum a model of a section of his native village, and in this article, in the issue of the journal of the museum for September, 1913, he gives a detailed account, with plans, of the methods of house-construction. Those of chiefs are sometimes elaborately decorated, and are looked on with respect, because in them are kept the old relics—ceremonial costumes, helmets, batons, carved and painted screens and posts—which have come down from the family ancestor. The house drawings are interesting as showing the methods of native architecture and carpentry.

No. 6 of the fourth volume of the Journal of the College of Agriculture of Tokyo is devoted to an account by Mr. Tsunekata Miyaké of the Japanese insects of the neuropterous group Mecoptera, a group of which Japan is already known to possess more than forty species, while Europe and America collectively do not own more than twenty. It was at one time supposed that these insects, as typified by Panorpa, were of value to agriculturists on account of their destroying other insects, but their importance in this respect appears to have been overrated.

The receipt of a copy of the February issue affords a welcome opportunity of bearing testimony to the high standard of excellence attained, both from the zoological and the artistic point of view, of Mr. Douglas English's illustrated monthly journal, *Wild Life*, which has now entered its third volume. Among the contents of the present issue an article by Mr. C. J. King on the grey seal in the Scilly Isles, illustrated by photographs showing the wonderful difference between the coat of the new-born young and half-grown individuals, is one of the most interesting. Attention may also be directed to the photograph by Mr. Seth Smith of the male pigmy hippopotamus recently presented to the Zoological Society by the Duke of Bedford, which, although taken when the animal was too much in the shade, serves to show the small head, slender limbs, and widely separated toes distinctive of the species. The society now possesses a pair of these rare animals.

The Transactions of the Royal Scottish Arboricultural Society, vol. xxviii., part 1 (January, 1914), contain the concluding part of Mr. A. D. Hopkinson's account of the State forests of Saxony, which are perhaps the best managed in Europe, being worked upon a strictly commercial basis. These forests, with an area of 426,105 acres, yielded in 1910 a gross return of 790,753*l.*, from which, if the working expenses, 327,869*l.*, are deducted, there remains a net annual revenue of 462,885*l.*, or 1*l.* 1*s.* 9*d.* an acre. The expenses comprise cost of administration, maintenance of roads and buildings, cost of felling and planting, etc., and include also such items as 1044*l.* for research work, and 8035*l.* for insurance of workmen. The main species in cultivation is spruce, which is felled at an age of eighty years. Of special interest to plant ecologists is Mr. G. P. Gordon's article on the different associations constituting the beautiful natural forest of the Zernez district in the Engadine, which has lately been made a nature reserve by the Swiss Government. Continental forestry is further dealt with in the official account of the visit of the society to Switzerland in July, 1913, and by numerous notes on the forests of France and southern Germany. The main article on home forestry deals in a practical way with the successful planting of a considerable tract of high-lying peat at Corrour, in Inverness-shire. The method adopted is a Belgian one, which was introduced by Sir John Stirling-Maxwell in 1908.

There seems to be some probability of more unfavourable ice conditions in the North Atlantic this year than existed during 1913. Although bergs were sighted throughout the whole of that year, they were comparatively few in number, and of small dimensions on the Transatlantic routes. The meteorological charts of that ocean for the present month published by the Meteorological Office and by the Deutsche Seewarte contain useful notes upon the subject. Bergs were seen at Belleisle early in January last, and also several about 46° N., between 46° and 49° W. On January 30, in 48·2° N. and 48·7° W., the steamer *Czar* had to alter her course considerably to get clear of field ice, and some ships bound for Canada have had, owing to unfavourable ice conditions, to take to the more southerly route before the usual time agreed upon. There was much ice on the west coast of Iceland in the early part of January, and several trawlers are reported to have received damage.

A bibliography of the Antarctic, from the earliest works to 1913, by J. Denucé, forms a bulky appendix to the thin report of the International Polar Commission held at Rome in April, 1913 (Bruxelles: Hayez, 1913). The first outcome of the ambitious projects of this scheme was the "Liste des Expéditions Polaires depuis 1800," compiled in 1908 by the same author, and republished in a revised form in 1911. The present bibliography is excellently arranged under various subjects, and in cases where the entries are numerous, a regional subdivision has been adopted. The entries under each heading are in chronological order, and classified with an index number on the decimal system. The division of the Antarctic into four equal quadrants is a mistake, as it results in the partition of the Ross Sea, but any scheme of division must have its drawbacks, especially as the isolated known areas become linked by further exploration. M. Denucé has founded his work on the polar library which the commission is trying to form in Brussels, but he has gone far beyond the scope of that collection, and has spread his net wide enough to include various important reviews of Antarctic works, many newspaper articles, and notes in geographical publications, some of which inevitably would be lost sight of but for a careful compilation of this kind. On the other hand, there is room for revision and additions. We have noted a few omissions, and some slight errors in references, besides the premature inclusion of some papers announced, but not yet published. However, M. Denucé's work is a welcome supplement to Dr. H. R. Mill's bibliography in the "Antarctic Manual" of 1901.

THE symbol $|x|$ as applied to real quantities denotes the numerical value of x irrespective of algebraic sign. In a recent paper (Moscow: I. N. Kouchnéreff and Co., 1913), Dr. D. Riabouchinsky, director of the aerodynamic institute of Koutchino, treats this quantity as a function of the variable x, and shows how this method leads to interesting formulæ involving the solution of equations, differentiation, and integration. A number of elegant geometrical applications are also given, such as equations of broken lines, and equations of limited portions of planes, such as a square area.

THE first number of the *Washington University Studies* contains an interesting paper by Mr. Benjamin M. Duggar on Lycopersicin, the red pigment of the tomato, and the effects of conditions on its development. This red pigment is partially or completely suppressed when green fruits are ripened at a temperature of 30° C. or above, the inhibition of reddening being proportional to the temperature above this point. The factors for reddening are not destroyed by high temperatures, and a return of the fruit to normal conditions causes rapid pigmentation. The presence of oxygen is necessary to bring about reddening, and fruits maintained in an oxygen-free atmosphere fail to redden at the normal ripening temperature. The colouring matter of the red peppers and of the arils of Momordica exhibit the absorption bands of Lycopersicin.

THE *Photographic Journal* for February contains a condensed account prepared by Mr. F. F. Renwick of Dr. H. Ewest's thesis on quantitative spectrophotography. After giving a short account of most of the methods used previously, the author gives a description of his own apparatus, and the tests he has made in order to see that it is capable of giving trustworthy results. The light from a Nernst lamp is condensed on the slit of a direct-vision spectroscope, and the spectrum is produced on the photographic plate to be tested. Immediately in front of the plate is a neutral Goldberg absorbing wedge which covers the whole plate, and is raised with the plate at a uniform rate. The curve separating the opaque from the transparent portion of the negative then allows the character of the plate to be determined, and the relations between the time of exposure, the intensity of the light, and the density of the negative in all parts of the spectrum to be investigated. The method seems convenient and trustworthy, and should lead to an extension of our knowledge in this field.

AN important paper on the nature of enzyme action by Mr. Hendrik S. Barendrecht appears in the *Biochemical Journal* (vol. vii., part 6). In this paper, which bears the title, "Enzyme Action, Facts and Theory," it is pointed out that the researches of the past few years on the kinetics of enzyme action have brought more confusion than clearness into this field. An attempt is made by Mr. Barendrecht to clear up some of the contradictory statements regarding the kinetics of some of the most simple enzyme actions. As a working hypothesis it is assumed that enzyme action spreads like a radiation from an enzyme particle as centre; this conception is developed mathematically for the cases of more or less concentrated solution of the substrate, and the effect is considered of the products of the action exercising an absorption on the active radiations, and hence on the velocity of the change. In this way velocity equations are derived, which explain certain cases which have appeared to be abnormal. In particular the special cases of the action of invertase on cane sugar, of lactase on milk sugar, and of maltase on maltose are considered, with especial reference to the effect of the resulting sugars on the velocity constants.

IN the course of an interesting and suggestive paper on the calculations and details for steel-frame buildings, read at the Concrete Institute on February 26, Mr. W. Cyril Cocking urged that all constructional engineers and draughtsmen should support the London Building Acts 1909 Amendment. It may be thought by some that certain amendments to the Act would be desirable, but no concessions can be expected unless all concerned with its working combine to make the best of it as at present framed. Time has shown already that the Act has been the means of improving considerably the general design of steelwork. The 1909 amendment is an Engineer's Act essentially, and the reinforced concrete regulations will be more so, and it seems within the possibilities of the near future that, provided the engineer takes advantage of his opportunities, he might assume the more important position—the architect then confining his attention solely to the architectural treatment. Whole-hearted cooperation between engineer and architect will tend to provide London with buildings in which the architecture is more fully developed, and combined with sound construction in such a manner that the demands of economy and scientific utility are satisfied fully.

A GENERAL discussion on every aspect of the passivity of metals was held at the meeting of the Faraday Society on November 12 last, and was reported in the issue of NATURE for November 20, 1913 (vol. xcii., p 356). The eight papers read on that occasion, together with the discussion upon them, have now been reprinted from the Transactions of the Faraday Society in book form, and can be obtained at the price of 7*s*. 6*d*.

The following books relating to science are announced, in addition to those referred to in our issue of March 5:—In *Anthropology*—The Ban of the Bori: an Account of Demons and Demon-Dancing in West and North Africa, Major A. J. N. Tremearne, illustrated (Heath, Cranton, and Ouseley); in *Biology*—The Wonder of Life, Prof. J. A. Thomson, illustrated (A. Melrose, Ltd.); In Nature's Ways, M. Woodward, illustrated (C. A. Pearson, Ltd.); British Flowering Plants, illustrated by Mrs. H Perrin, with descriptive notes and an introduction by Prof. Boulger, 4 vols. (B. Quaritch); in *Chemistry*—Chemical Lecture Diagrams, Dr. G. Martin; The Wonderland of Modern Chemistry, Dr. G. Martin, illustrated (Sampson Low and Co., Ltd.); Elements of Physical Chemistry, J. L. R. Morgan, new edition (New York: J. Wiley and Sons, Inc.); in *Engineering*—Modern Practice in Tunnelling, D. W. Brunton and J. A. Davis; Subaqueous Foundations, C. E. Fowler; Influence Lines for the Determination of Maximum Moments in Beams and Trusses, M. A. Howe (New York: J. Wiley and Sons, Inc.); in *Geography and Travel*—Sport and Science on the Sino-Mongolian Frontier, A. de C. Sowerby (A. Melrose, Ltd.); Hunting and Hunted in the Belgian Congo, R. D. Cooper, illustrated; South Polar Times, reproduced in facsimile, new volume (Smith, Elder and Co.); in *Geology*—A.B.C. of the Useful Minerals, A. McLeod; Engineering Geology, H. Ries and T. L. Watson (New York: J. Wiley and Sons, Inc.); in *Mathematical and Physical Science*—Science and Method, H. Poincaré, translated by F. Maitland (T. Nelson and Sons); The Stars Night by Night, J. H. Elgie, illustrated (C. A. Pearson, Ltd.); Meteorological Treatise, F. H. Bigelow; Theory of Numbers, R. D. Carmichael; Elementary Theory of Equations, L. E. Dickson; Invariants, L. E. Dickson (New York: J. Wiley and Sons, Inc.); in *Medical Science*—Industrial Gas Poisoning, Prof. Glaister and Dr. D. D. Logan (E. and S. Livingstone).

OUR ASTRONOMICAL COLUMN.

Comet 1913*f* (Delavan).—In this column for February 12 we gave the ephemeris of comet 1913*f*, discovered by Delavan, which was computed by Dr. G. van Biesbroeck. This ephemeris is now continued here for the rest of the month so far as it is published:—

oh. M.T. Berlin.

	R.A. (true) h. m. s.	Dec. (true) ° ′	Mag.
March 13	2 47 21	+5 53·6	10·7
17	49 27	6 38·5	10·7
21	51 44	7 23·7	10·7
25	2 54 12	+8 9·2	10·6

The magnitudes are based on the assumption that the comet was of magnitude 11·0 on December 17. The current number of the Lick Observatory Bulletin (No. 250) contains another computation of the parabolic elements of this comet undertaken by Messrs. S. Einarsson and S. B. Nicholson, and an ephemeris based on those elements by Miss Julia I. Mackay and Mr. C. D. Shane, of the same institution. The elements are very closely similar to those calculated by Dr. Biesbroeck, and the ephemeris differs only slightly. According to the last-mentioned computers, it is stated that assuming the brightness of the comet to have been 1·00 on December 29 of last year the comet may become visible to the naked eye.

On the other hand, M. R. Goudey contributes to the *Astronomische Nachrichten* (No. 4717) elliptic elements of the above comet based on observations extending between December 18, 1913, and January 15 of the present year. The position he gives in his ephemeris for March 21 is almost identical with that stated in the foregoing table.

A Large Reflector for Canada.—It is very satisfactory to be able to record that Canada will soon be equipped with a fine large reflecting telescope, contracts having been given for its construction. When it is mentioned that Messrs. J. A. Brashear and Co. will be responsible for the optical parts, and Messrs. Warner and Swasey Co. for the mounting, the well-known capabilities of these firms should certainly secure a fine instrument. Prof. J. S. Plaskett is to be congratulated on the successful issue of his endeavour to secure an instrument of large aperture for Canada, and his account of the proposed form of mounting, programme of work, etc., contributed to the current number of the Journal of the Royal Astronomical Society of Canada will be read with interest. The telescope will have a parabolic mirror of 72 in. clear aperture, with a central hole of 10 in., the focal length being 30 ft.; it is to be mounted similarly to the Melbourne reflector. It will be primarily used for spectrographic observations of stellar radial velocities, but it is planned to have the telescope available for the direct photography of nebulæ, clusters, etc. One of the principal considerations in the design is to enable work "to be done in the most efficient and convenient way possible with the simplest possible mechanical design." The communication in question describes in detail the simplifications with which it is intended the instrument shall be equipped.

The Smithsonian Astrophysical Observatory.—The report of the Astrophysical Observatory for 1913, under the direction of the Smithsonian Institution, contains a good account of progress made; in fact, the director, Mr. Abbot, refers to the work of the observatory as "uncommonly successful." We notice that for the solar work at Mount Wilson there has just been erected a Tower telescope, 40 ft. high, for use with the spectrobolometer, for the study of the distribution of radiation over the sun's disc. The report states many results of the year's work. Thus the mean value of the solar constant of radiation at the earth's mean distance from the sun, from about 700 observations made at high and low stations between 1902 and 1912 is 1·932 calories per square centimetre per minute. The fluctuation of the "solar constant" values is attributed to the variability of the sun, and in addition to the periodicity due to sun-spots, there is another "irregular, non-periodic variation, sometimes running its course in a week or ten days, at other times in longer periods and varying over irregular fluctuations of from 2 to 10 per cent. of the total radiation in magnitude." Further, a combination of the effects of sun-spots and volcanic haze is put forward as explaining the principal outstanding irregularities in the temperature of the earth for the last thirty years. Finally, in the Californian expedition, in which sounding balloons were employed, the solar radiation values at very high altitudes indicate that the direct pyrohelion metric observations gave results of the same order of magnitude as the solar constant work of 1902–12 by high and low sun observations on homogeneous rays, according to Langley's methods.